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PETROLOGICAL ABSTRACTS AND REVIEWS

EDITED BY ALBERT JOHANNSEN

Winchell, Alexander N. *Directions for Laboratory Work in Optical Mineralogy.* Published by the Author, Madison, Wis., 1911. Pp. 36. Wrappers.

This very useful little pamphlet for laboratory use was first published for students at the University of Wisconsin. It is now reprinted with the omission of the original slide numbers but with blank spaces into which may be written those of any collection of thin sections. Problems are given in the use of the microscope for determinations by ordinary light, parallel polarized light, crossed nicols with parallel light, and crossed nicols with convergent light. Throughout the book references to the proper pages in the author's *Optical Mineralogy* are given for the explanation of the phenomena observed.

A. J.

Winchell, Alexander N. *Geology of the National Mining District, Nevada.* Min. and Sci. Press, 1912. Pp. 16.

Describes various rocks occurring in Nevada. Suggests the name auganite for "a volcanic rock consisting essentially of basic plagioclase and pyroxene. The plagioclase is usually labradorite, but may be more basic. . . . . Having provided the new name for rocks ordinarily called augite andesite, it is possible to use the latter name for rocks which are actually varieties of andesite, and consist essentially of acid plagioclase and pyroxene." The reviewer believes that augite andesite, in the past, has been so used by most petrographers. Auganite, therefore, appears to be suggested for olivine-free basalt, the dividing line between andesite and basalt being plagioclase of the composition Ab_1An_1.

A. J.

Woyno, Tadeusz Jerzy. "Petrographische Untersuchung der Casannaschieter des mittleren Bagnetales (Wallis)," *Neues Jahrb.*, XXXIII (1911), 136–207.

The Casanna schists in the central Bagnetals consist of a complex of metamorphosed rocks whose chief constituents are glaucophane, epidote, chlorite, albite, sericite, quartz, and calcite. In most of the rocks the amount of soda is greater than potash. Of these rocks, two, prasinite and epidote glaucophane schist, are derived from igneous rocks.

A. J.

WRIGHT, FRED. EUGENE. "Mikroskopische Petrographie vom quantitativen Gesichtspunkte aus," *Neues Jahrb.*, XXV (1913), 753-75.

A translation of an article by the same writer in the *Journal of Geology*, XX (1912), 481-501.

WRIGHT, FRED. EUGENE. "A New Thermal Microscope for the Measurement of the Optical Constants of Minerals at High Temperatures," *Jour. Wash. Acad. Sci.*, III (1913), 232-36.

Describes and illustrates a new thermal microscope for the determination of the birefringences, extinction angles, and optic axial angles of minerals at temperatures between 10° C. and 1200° C.

A. J

WRIGHT, FRED. E., and VAN ORSTRAND, C. E. "The Determination of the Order of Agreement between Observation and Theory in Mineral Analyses," *Jour. Wash. Acad. Sci.*, III (1913), 223-31.

The authors discuss the principles underlying the calculation of mineral formulas.

A. J.

WRIGHT, FRED. EUGENE. *The Methods of Petrographic-Microscopic Research.* Carnegie Institution, Publication No. 158. Washington, 1911. Pp. 204, pls. 11.

The author found, in his work on silicate preparations in the Geophysical Laboratory, that the ordinary methods of determining minerals microscopically were not always sufficient in working with artificial fine-grained products, and it was necessary to devise new methods or modify old ones. While many of the results of the author's comparative studies on the relative merits and accuracy of a number of these methods have been published at different times in the *American Journal of Science*, they are here brought together in proper relations to other available methods. As stated by the author, the different methods best adapted for the microscopic examination of fine-grained and artificial preparations are here considered with special reference to their degree of accuracy and range of general application.

In the introduction, the petrographic microscope and its several mechanical and optical parts are described. This is followed by chapters dealing with the methods for determining refractive indices, birefringence, and extinction and optic angles. There are also reproduced some extremely useful charts, such as Wulff's stereographic net, Hilton's gnomonic projection net, Fedorow's refractive index diagram, and various others.

The book is an extremely valuable contribution to the literature of petrography, and is especially important for the author's comparative study of the value of different methods. It may be studied with profit by all advanced students.

A. J.

WRIGHT, FRED. EUGENE. "The Index Ellipsoid (Optical Indicatrix) in Petrographic Microscopic Work," *Amer. Jour. Sci.*, XXXV (1913), 133-38.

The writer suggests abandoning the "elasticity ellipsoid" and the symbols for the "axes of elasticity" in the explanation of the phenomena of light in crystals. He would use instead only the indicatrix and the symbols for the refractive indices, regarding the use of other symbols as bewildering to the student. The reviewer's experience has been that students can grasp much more readily the idea of an ease (or difficulty) of vibration in a certain direction in a crystal, and a corresponding rate of movement at right angles to it, than they can the inverse relation of the refractive indices. The reviewer long ago abandoned the terms "axes of elasticity" and substituted for them "ease of vibration axes."

A. J.

WRIGHT, FRED. EUGENE. "Oblique Illumination in Petrographic Microscope Work," *Amer. Jour. Sci.*, XXXV (1913), 63-82.

A study of the cause and effect of oblique illumination in the study of mineral plates. A sliding diaphragm in the focal plane of the condenser is considered by the author to be the best method for producing this illumination. He points out that in the measurement of extinction angles, central illumination with parallel plane-polarized light is essential.

A. J.

WÜLFING, E. A. "Fortschritte auf dem Gebiete der Instrumentenkunde," *Fortschritte der Min., Krist., u. Petrog.*, III (1913), pp. 63–92.

A summary of the progress made, during the past decade, in mineralogical and petrographical instruments, including goniometers, microscopes, microscope accessories, conoscopes, total reflectometers, photometers, chromoscopes, lighting-, projection-, grinding-, and separating-apparatus, sclerometers, electromagnets, electric ovens, drawing instruments, etc. A bibliography of 214 articles, and brief descriptions of the various instruments are given.

A. J.

WÜLFING, E. A. "Eine einfache Vorrichtung für konstante Wasserbäder," *Zeitschr. f. angew. Chemie*, XXVI (1913), pp. 87–90.

Describes a new water bath for constant temperatures.

A. J.

WÜLFING, E. A. "Ueber die objektive Darstellung der Grenzkurven bei Kristallen," *Sitzb. Akad. Wiss. Heidelberg*, 1912, Ab. 19, pp. 14.

WÜLFING, E. A. "Ueber Projektion mikroskopischer Objekte ins besondere im polarisierten Licht," *Sitzb. Akad. Wiss. Heidelberg*, 1911, Ab. 36, pp. 40.

Describes a lantern for projecting microscopic objects. With this instrument it is possible to project interference colors of minerals, interference figures, to show the optical character of minerals, and in fact to show upon the screen all of the phenomena seen with the polarizing microscope.

A. J.

WÜLFING, E. A. "Ueber kristallographische Kaleidoskope," *Neues Jahrb.*, I (1912), 37–50.

Describes an apparatus by means of which crystal form, crystal symmetry, etc., may be clearly shown to students.

A. J.